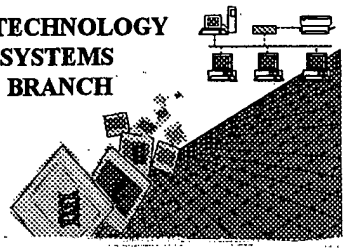
BIOTECHNOLOGY
SYSTEMS
BRANCH



05/10
01/24

RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/940,316A
Source: OIPE
Date Processed by STIC: 1/29/03

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2) **TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY**

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FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.
PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)
PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

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Revised 01/29/2002

Does Not Comply
Corrected Diskette Needed

OIPE

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

See p. 2 for explanation of global error.

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
      3 <110> APPLICANT: KOSAN BIOSCIENCES, Inc.
      4       REEVES, CHRISTOPHER
      5       CHU, DANIEL
      6       KHOSLA, CHAITAN
      7       SANTI, DANIEL
      8       WU, KAI
     10 <120> TITLE OF INVENTION: POLYKETIDES ENCODING THE fkbA GENE OF THE FK-520 POLYKETIDE
SYNTHASE
     11       GENE CLUSTER
     13 <130> FILE REFERENCE: 30062-20026.11
     15 <140> CURRENT APPLICATION NUMBER: 09/940,316A
     16 <141> CURRENT FILING DATE: 2001-08-27
     18 <150> PRIOR APPLICATION NUMBER: 09/410,551
     19 <151> PRIOR FILING DATE: 1999-10-01
     21 <150> PRIOR APPLICATION NUMBER: US 60/139,650
     22 <151> PRIOR FILING DATE: 1999-06-17
     24 <150> PRIOR APPLICATION NUMBER: US 60/123,810
     25 <151> PRIOR FILING DATE: 1999-03-11
     27 <150> PRIOR APPLICATION NUMBER: US 60/102,748
     28 <151> PRIOR FILING DATE: 1998-10-02
     30 <160> NUMBER OF SEQ ID NOS: 72
     32 <170> SOFTWARE: FastSEQ for Windows Version 4.0
```

ERRORED SEQUENCES

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   3245 <210> SEQ ID NO: 17
   3246 <211> LENGTH: 1488
   3247 <212> TYPE: PRT
   3248 <213> ORGANISM: Artificial Sequence
   3250 <220> FEATURE:
   3251 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
   3252       synthase fragment
   3254 <400> SEQUENCE: 17
   3255 Ile Trp Gln Leu Ala Glu Ala Leu Leu Thr Leu Val Arg Glu Ser Thr
   3256   1               5                  10                  15
   3258 Ala Ala Val Leu Gly His Val Gly Gly Glu Asp Ile Pro Ala Thr Ala
   3259              20                  25                  30
   3261 Ala Phe Lys Asp Leu Gly Ile Asp Ser Leu Thr Ala Val Gln Leu Arg
   3262          35                  40                  45
   3264 Asn Ala Leu Thr Glu Ala Thr Gly Val Arg Leu Asn Ala Thr Ala Val
   3265      50                  55                  60
   3267 Phe Asp Phe Pro Thr Pro His Val Leu Ala Gly Lys Leu Gly Asp Glu
   3268  65                  70                  75                  80
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
3417 Ile Gln Ala Ala Ile Gly Ala Leu Ala His Leu Tyr Val Asn Gly Val
3418 865                 870                 875                 880
3420 Thr Val Asp Trp Pro Ala Leu Leu Gly Asp Ala Pro Ala Thr Arg Val
3421                 885                 890                 895
3423 Leu Asp Leu Pro Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Glu
3424             900                 905                 910
3426 Ser Ala Arg Pro Ala Ala Ser Asp Ala Gly His Pro Val Leu Gly Ser
3427         915                 920                 925
3429 Gly Ile Ala Leu Ala Gly Ser Pro Gly Arg Val Phe Thr Gly Ser Val
3430     930                 935                 940
3432 Pro Thr Gly Ala Asp Arg Ala Val Phe Val Ala Glu Leu Ala Leu Ala
3433 945                 950                 955                 960
3435 Ala Ala Asp Ala Val Asp Cys Ala Thr Val Glu Arg Leu Asp Ile Ala
3436                 965                 970                 975
3438 Ser Val Pro Gly Arg Pro Gly His Gly Arg Thr Thr Val Gln Thr Trp
3439             980                 985                 990
3441 Val Asp Glu Pro Ala Asp Asp Gly Arg Arg Arg Phe Thr Val His Thr
3442         995                1000                1005
3444 Arg Thr Gly Asp Ala Pro Trp Thr Leu His Ala Glu Gly Val Leu Arg
3445    1010                1015                1020
3447 Pro His Gly Thr Ala Leu Pro Asp Ala Ala Asp Ala Glu Trp Pro Pro
E--> 3448 1025                1030                1035                1040
3450 Pro Gly Ala Val Pro Ala Asp Gly Leu Pro Gly Val Trp Arg Arg Gly
3451                1045                1050                1055
3453 Asp Gln Val Phe Ala Glu Ala Glu Val Asp Gly Pro Asp Gly Phe Val
3454            1060                1065                1070
3456 Val His Pro Asp Leu Leu Asp Ala Val Phe Ser Ala Val Gly Asp Gly
3457        1075                1080                1085
3459 Ser Arg Gln Pro Ala Gly Trp Arg Asp Leu Thr Val His Ala Ser Asp
3460    1090                1095                1100
3462 Ala Thr Val Leu Arg Ala Cys Leu Thr Arg Arg Thr Asp Gly Ala Met
E--> 3463 1105                1110                1115                1120
3465 Gly Phe Ala Ala Phe Asp Gly Ala Gly Leu Pro Val Leu Thr Ala Glu
3466                1125                1130                1135
3468 Ala Val Thr Leu Arg Glu Val Ala Ser Pro Ser Gly Ser Glu Glu Ser
3469            1140                1145                1150
3471 Asp Gly Leu His Arg Leu Glu Trp Leu Ala Val Ala Glu Ala Val Tyr
3472        1155                1160                1165
3474 Asp Gly Asp Leu Pro Glu Gly His Val Leu Ile Thr Ala Ala His Pro
3475    1170                1175                1180
3477 Asp Asp Pro Glu Asp Ile Pro Thr Arg Ala His Thr Arg Ala Thr Arg
E--> 3478 1185                1190                1195                1200
3480 Val Leu Thr Ala Leu Gln His His Leu Thr Thr Thr Asp His Thr Leu
3481                1205                1210                1215
3483 Ile Val His Thr Thr Thr Asp Pro Ala Gly Ala Thr Val Thr Gly Leu
3484            1220                1225                1230
3486 Thr Arg Thr Ala Gln Asn Glu His Pro His Arg Ile Arg Leu Ile Glu
3487        1235                1240                1245
3489 Thr Asp His Pro His Thr Pro Leu Pro Leu Ala Gln Leu Ala Thr Leu
```

Add first or last digits and move over 1 space so that the first and last digits align with left and right margins, respectively.

The type of errors shown exist throughout the Sequence Listing. Please check subsequent sequences for similar errors.

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     3490    1250                1255                1260
     3492 Asp His Pro His Leu Arg Leu Thr His His Thr Leu His His Pro His
E--> 3493 |265→              1270                1275              ←1280
     3495 Leu Thr Pro Leu His Thr Thr Thr Pro Pro Thr Thr Thr Pro Leu Asn
     3496                1285                1290                1295
     3498 Pro Glu His Ala Ile Ile Ile Thr Gly Gly Ser Gly Thr Leu Ala Gly
     3499            1300                1305                1310
     3501 Ile Leu Ala Arg His Leu Asn His Pro His Thr Tyr Leu Leu Ser Arg
     3502        1315                1320                1325
     3504 Thr Pro Pro Pro Asp Ala Thr Pro Gly Thr His Leu Pro Cys Asp Val
     3505    1330                1335                1340
     3507 Gly Asp Pro His Gln Leu Ala Thr Thr Leu Thr His Ile Pro Gln Pro
E--> 3508 |345→              1350                1355              ←1360
     3510 Leu Thr Ala Ile Phe His Thr Ala Ala Thr Leu Asp Asp Gly Ile Leu
     3511                1365                1370                1375
     3513 His Ala Leu Thr Pro Asp Arg Leu Thr Thr Val Leu His Pro Lys Ala
     3514            1380                1385                1390
     3516 Asn Ala Ala Trp His Leu His His Leu Thr Gln Asn Gln Pro Leu Thr
     3517        1395                1400                1405
     3519 His Phe Val Leu Tyr Ser Ser Ala Ala Ala Val Leu Gly Ser Pro Gly
     3520    1410                1415                1420
     3522 Gln Gly Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp Ala Leu Ala Thr
E--> 3523 |425→              1430                1435              ←1440
     3525 His Arg His Thr Leu Gly Gln Pro Ala Thr Ser Ile Ala Trp Gly Met
     3526                1445                1450                1455
     3528 Trp His Thr Thr Ser Thr Leu Thr Gly Gln Leu Asp Asp Ala Asp Arg
     3529            1460                1465                1470
     3531 Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile Thr Asp Asp Glu Gly
     3532        1475                1480                1485
     3932 <210> SEQ ID NO: 19
     3933 <211> LENGTH: 1517
     3934 <212> TYPE: PRT
     3935 <213> ORGANISM: Artificial Sequence
     3937 <220> FEATURE:
     3938 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
     3939       synthase fragment
     3941 <400> SEQUENCE: 19
     3942 Gln Leu Ala Glu Ala Leu Leu Thr Leu Val Arg Glu Ser Thr Ala Ala
     3943   1               5                  10                  15
     3945 Val Leu Gly His Val Gly Gly Glu Asp Ile Pro Ala Thr Ala Ala Phe
     3946              20                  25                  30
     3948 Lys Asp Leu Gly Ile Asp Ser Leu Thr Ala Val Gln Leu Arg Asn Ala
     3949          35                  40                  45
     3951 Leu Thr Glu Ala Thr Gly Val Arg Leu Asn Ala Thr Ala Val Phe Asp
     3952      50                  55                  60
     3954 Phe Pro Thr Pro His Val Leu Ala Gly Lys Leu Gly Asp Glu Leu Thr
     3955  65                  70                  75                  80
     3957 Gly Thr Arg Ala Pro Val Val Pro Arg Thr Ala Ala Thr Ala Gly Ala
     3958                  85                  90                  95
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: US/09/940,316A TIME: 08:05:04

Input Set : D:\30062-20026.txt
Output Set: N:\CRF4\01292003\I940316A.raw

```
     4107 Asp Val Val Thr Val Ala Thr Leu Arg Arg Asp Asp Gly Asp Ala Thr
     4108                 885                 890                 895
     4110 Arg Met Leu Thr Ala Leu Ala Gln Ala Tyr Val His Gly Val Thr Val
     4111             900                 905                 910
     4113 Asp Trp Pro Ala Ile Leu Gly Thr Thr Thr Thr Arg Val Leu Asp Leu
     4114         915                 920                 925
     4116 Pro Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Glu Ser Ala Arg
     4117     930                 935                 940
     4119 Pro Ala Ala Ser Asp Ala Gly His Pro Val Leu Gly Ser Gly Ile Ala
     4120 945                 950                 955                 960
     4122 Leu Ala Gly Ser Pro Gly Arg Val Phe Thr Gly Ser Val Pro Thr Gly
     4123                 965                 970                 975
     4125 Ala Asp Arg Ala Val Phe Val Ala Glu Leu Ala Leu Ala Ala Ala Asp
     4126             980                 985                 990
     4128 Ala Val Asp Cys Ala Thr Val Glu Arg Leu Asp Ile Ala Ser Val Pro
     4129         995                1000                1005
     4131 Gly Arg Pro Gly His Gly Arg Thr Thr Val Gln Thr Trp Val Asp Glu
     4132    1010                1015                1020
     4134 Pro Ala Asp Asp Gly Arg Arg Arg Phe Thr Val His Thr Arg Thr Gly
E--> 4135 025                1030                1035                1040
     4137 Asp Ala Pro Trp Thr Leu His Ala Glu Gly Val Leu Arg Pro His Gly
     4138                1045                1050                1055
     4140 Thr Ala Leu Pro Asp Ala Ala Asp Ala Glu Trp Pro Pro Pro Gly Ala
     4141            1060                1065                1070
     4143 Val Pro Ala Asp Gly Leu Pro Gly Val Trp Arg Arg Gly Asp Gln Val
     4144        1075                1080                1085
     4146 Phe Ala Glu Ala Glu Val Asp Gly Pro Asp Gly Phe Val Val His Pro
     4147    1090                1095                1100
     4149 Asp Leu Leu Asp Ala Val Phe Ser Ala Val Gly Asp Gly Ser Arg Gln
E--> 4150 105                1110                1115                1120
     4152 Pro Ala Gly Trp Arg Asp Leu Thr Val His Ala Ser Asp Ala Thr Val
     4153                1125                1130                1135
     4155 Leu Arg Ala Cys Leu Thr Arg Arg Thr Asp Gly Ala Met Gly Phe Ala
     4156            1140                1145                1150
     4158 Ala Phe Asp Gly Ala Gly Leu Pro Val Leu Thr Ala Glu Ala Val Thr
     4159        1155                1160                1165
     4161 Leu Arg Glu Val Ala Ser Pro Ser Gly Ser Glu Glu Ser Asp Gly Leu
     4162    1170                1175                1180
     4164 His Arg Leu Glu Trp Leu Ala Val Ala Glu Ala Val Tyr Asp Gly Asp
E--> 4165 185                1190                1195                1200
     4167 Leu Pro Glu Gly His Val Leu Ile Thr Ala Ala His Pro Asp Asp Pro
     4168                1205                1210                1215
     4170 Glu Asp Ile Pro Thr Arg Ala His Thr Arg Ala Thr Arg Val Leu Thr
     4171            1220                1225                1230
     4173 Ala Leu Gln His His Leu Thr Thr Thr Asp His Thr Leu Ile Val His
     4174        1235                1240                1245
     4176 Thr Thr Thr Asp Pro Ala Gly Ala Thr Val Thr Gly Leu Thr Arg Thr
     4177    1250                1255                1260
     4179 Ala Gln Asn Glu His Pro His Arg Ile Arg Leu Ile Glu Thr Asp His
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
E--> 4180 265                1270                1275                1280
     4182 Pro His Thr Pro Leu Pro Leu Ala Gln Leu Ala Thr Leu Asp His Pro
     4183                1285                1290                1295
     4185 His Leu Arg Leu Thr His His Thr Leu His His Pro His Leu Thr Pro
     4186            1300                1305                1310
     4188 Leu His Thr Thr Thr Pro Pro Thr Thr Thr Pro Leu Asn Pro Glu His
     4189        1315                1320                1325
     4191 Ala Ile Ile Ile Thr Gly Gly Ser Gly Thr Leu Ala Gly Ile Leu Ala
     4192    1330                1335                1340
     4194 Arg His Leu Asn His Pro His Thr Tyr Leu Leu Ser Arg Thr Pro Pro
E--> 4195 345                1350                1355                1360
     4197 Pro Asp Ala Thr Pro Gly Thr His Leu Pro Cys Asp Val Gly Asp Pro
     4198                1365                1370                1375
     4200 His Gln Leu Ala Thr Thr Leu Thr His Ile Pro Gln Pro Leu Thr Ala
     4201            1380                1385                1390
     4203 Ile Phe His Thr Ala Ala Thr Leu Asp Asp Gly Ile Leu His Ala Leu
     4204        1395                1400                1405
     4206 Thr Pro Asp Arg Leu Thr Thr Val Leu His Pro Lys Ala Asn Ala Ala
     4207    1410                1415                1420
     4209 Trp His Leu His His Leu Thr Gln Asn Gln Pro Leu Thr His Phe Val
E--> 4210 425                1430                1435                1440
     4212 Leu Tyr Ser Ser Ala Ala Ala Val Leu Gly Ser Pro Gly Gln Gly Asn
     4213                1445                1450                1455
     4215 Tyr Ala Ala Ala Asn Ala Phe Leu Asp Ala Leu Ala Thr His Arg His
     4216            1460                1465                1470
     4218 Thr Leu Gly Gln Pro Ala Thr Ser Ile Ala Trp Gly Met Trp His Thr
     4219        1475                1480                1485
     4221 Thr Ser Thr Leu Thr Gly Gln Leu Asp Asp Ala Asp Arg Asp Arg Ile
     4222    1490                1495                1500
     4224 Arg Arg Gly Gly Phe Leu Pro Ile Thr Asp Asp Glu Gly
E--> 4225 505                1510                1515
     4615 <210> SEQ ID NO: 21
     4616 <211> LENGTH: 1482
     4617 <212> TYPE: PRT
     4618 <213> ORGANISM: Artificial Sequence
     4620 <220> FEATURE:
     4621 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
     4622       synthase fragment
     4624 <400> SEQUENCE: 21
     4625 Gln Leu Ala Glu Ala Leu Leu Thr Leu Val Arg Glu Ser Thr Ala Ala
     4626   1               5                  10                  15
     4628 Val Leu Gly His Val Gly Gly Glu Asp Ile Pro Ala Thr Ala Ala Phe
     4629              20                  25                  30
     4631 Lys Asp Leu Gly Ile Asp Ser Leu Thr Ala Val Gln Leu Arg Asn Ala
     4632          35                  40                  45
     4634 Leu Thr Glu Ala Thr Gly Val Arg Leu Asn Ala Thr Ala Val Phe Asp
     4635      50                  55                  60
     4637 Phe Pro Thr Pro His Val Leu Ala Gly Lys Leu Gly Asp Glu Leu Thr
     4638  65                  70                  75                  80
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RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
4787 Ala Leu Ala His Leu Tyr Val Asn Gly Val Thr Val Asp Trp Pro Ala
4788 865                 870                 875                 880
4790 Leu Leu Gly Asp Ala Pro Ala Thr Arg Val Leu Asp Leu Pro Thr Tyr
4791                 885                 890                 895
4793 Ala Phe Gln His Gln Arg Tyr Trp Leu Glu Ser Ala Arg Pro Ala Ala
4794             900                 905                 910
4796 Ser Asp Ala Gly His Pro Val Leu Gly Ser Gly Ile Ala Leu Ala Gly
4797         915                 920                 925
4799 Ser Pro Gly Arg Val Phe Thr Gly Ser Val Pro Thr Gly Ala Asp Arg
4800     930                 935                 940
4802 Ala Val Phe Val Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala Val Asp
4803 945                 950                 955                 960
4805 Cys Ala Thr Val Glu Arg Leu Asp Ile Ala Ser Val Pro Gly Arg Pro
4806                 965                 970                 975
4808 Gly His Gly Arg Thr Thr Val Gln Thr Trp Val Asp Glu Pro Ala Asp
4809             980                 985                 990
4811 Asp Gly Arg Arg Arg Phe Thr Val His Thr Arg Thr Gly Asp Ala Pro
4812         995                1000                1005
4814 Trp Thr Leu His Ala Glu Gly Val Leu Arg Pro His Gly Thr Ala Leu
4815    1010                1015                1020
4817 Pro Asp Ala Ala Asp Ala Glu Trp Pro Pro Pro Gly Ala Val Pro Ala
E--> 4818 025                1030                1035                1040
4820 Asp Gly Leu Pro Gly Val Trp Arg Arg Gly Asp Gln Val Phe Ala Glu
4821                1045                1050                1055
4823 Ala Glu Val Asp Gly Pro Asp Gly Phe Val Val His Pro Asp Leu Leu
4824             1060                1065                1070
4826 Asp Ala Val Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro Ala Gly
4827         1075                1080                1085
4829 Trp Arg Asp Leu Thr Val His Ala Ser Asp Ala Thr Val Leu Arg Ala
4830    1090                1095                1100
4832 Cys Leu Thr Arg Arg Thr Asp Gly Ala Met Gly Phe Ala Ala Phe Asp
E--> 4833 105                1110                1115                1120
4835 Gly Ala Gly Leu Pro Val Leu Thr Ala Glu Ala Val Thr Leu Arg Glu
4836                1125                1130                1135
4838 Val Ala Ser Pro Ser Gly Ser Glu Glu Ser Asp Gly Leu His Arg Leu
4839             1140                1145                1150
4841 Glu Trp Leu Ala Val Ala Glu Ala Val Tyr Asp Gly Asp Leu Pro Glu
4842         1155                1160                1165
4844 Gly His Val Leu Ile Thr Ala Ala His Pro Asp Asp Pro Glu Asp Ile
4845    1170                1175                1180
4847 Pro Thr Arg Ala His Thr Arg Ala Thr Arg Val Leu Thr Ala Leu Gln
E--> 4848 185                1190                1195                1200
4850 His His Leu Thr Thr Thr Asp His Thr Leu Ile Val His Thr Thr Thr
4851                1205                1210                1215
4853 Asp Pro Ala Gly Ala Thr Val Thr Gly Leu Thr Arg Thr Ala Gln Asn
4854             1220                1225                1230
4856 Glu His Pro His Arg Ile Arg Leu Ile Glu Thr Asp His Pro His Thr
4857         1235                1240                1245
4859 Pro Leu Pro Leu Ala Gln Leu Ala Thr Leu Asp His Pro His Leu Arg
```

RAW SEQUENCE LISTING DATE: 01/29/2003
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Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     4860    1250                1255                1260
     4862 Leu Thr His His Thr Leu His His Pro His Leu Thr Pro Leu His Thr
E--> 4863 265                 1270                1275                1280
     4865 Thr Thr Pro Pro Thr Thr Thr Pro Leu Asn Pro Glu His Ala Ile Ile
     4866                1285                1290                1295
     4868 Ile Thr Gly Gly Ser Gly Thr Leu Ala Gly Ile Leu Ala Arg His Leu
     4869            1300                1305                1310
     4871 Asn His Pro His Thr Tyr Leu Leu Ser Arg Thr Pro Pro Pro Asp Ala
     4872        1315                1320                1325
     4874 Thr Pro Gly Thr His Leu Pro Cys Asp Val Gly Asp Pro His Gln Leu
     4875    1330                1335                1340
     4877 Ala Thr Thr Leu Thr His Ile Pro Gln Pro Leu Thr Ala Ile Phe His
E--> 4878 345                 1350                1355                1360
     4880 Thr Ala Ala Thr Leu Asp Asp Gly Ile Leu His Ala Leu Thr Pro Asp
     4881                1365                1370                1375
     4883 Arg Leu Thr Thr Val Leu His Pro Lys Ala Asn Ala Ala Trp His Leu
     4884            1380                1385                1390
     4886 His His Leu Thr Gln Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser
     4887        1395                1400                1405
     4889 Ser Ala Ala Ala Val Leu Gly Ser Pro Gly Gln Gly Asn Tyr Ala Ala
     4890    1410                1415                1420
     4892 Ala Asn Ala Phe Leu Asp Ala Leu Ala Thr His Arg His Thr Leu Gly
E--> 4893 425                 1430                1435                1440
     4895 Gln Pro Ala Thr Ser Ile Ala Trp Gly Met Trp His Thr Thr Ser Thr
     4896                1445                1450                1455
     4898 Leu Thr Gly Gln Leu Asp Asp Ala Asp Arg Asp Arg Ile Arg Arg Gly
     4899            1460                1465                1470
     4901 Gly Phe Leu Pro Ile Thr Asp Asp Glu Gly
     4902        1475                1480
     5300 <210> SEQ ID NO: 23
     5301 <211> LENGTH: 1509
     5302 <212> TYPE: PRT
     5303 <213> ORGANISM: Artificial Sequence
     5305 <220> FEATURE:
     5306 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
     5307       synthase fragment
     5309 <400> SEQUENCE: 23
     5310 Gln Leu Ala Glu Ala Leu Leu Thr Leu Val Arg Glu Ser Thr Ala Ala
     5311   1               5                  10                  15
     5313 Val Leu Gly His Val Gly Gly Glu Asp Ile Pro Ala Thr Ala Ala Phe
     5314              20                  25                  30
     5316 Lys Asp Leu Gly Ile Asp Ser Leu Thr Ala Val Gln Leu Arg Asn Ala
     5317          35                  40                  45
     5319 Leu Thr Glu Ala Thr Gly Val Arg Leu Asn Ala Thr Ala Val Phe Asp
     5320      50                  55                  60
     5322 Phe Pro Thr Pro His Val Leu Ala Gly Lys Leu Gly Asp Glu Leu Thr
     5323  65                  70                  75                  80
     5325 Gly Thr Arg Ala Pro Val Val Pro Arg Thr Ala Ala Thr Ala Gly Ala
     5326                  85                  90                  95
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     5475 Arg Arg Asp Asp Gly Asp Ala Thr Arg Met Leu Thr Ala Leu Ala Gln
     5476                 885                 890                 895
     5478 Ala Tyr Val His Gly Val Thr Val Asp Trp Pro Ala Ile Leu Gly Thr
     5479             900                 905                 910
     5481 Thr Thr Thr Arg Val Leu Asp Leu Pro Thr Tyr Ala Phe Gln His Gln
     5482         915                 920                 925
     5484 Arg Tyr Trp Leu Glu Ser Ala Arg Pro Ala Ala Ser Asp Ala Gly His
     5485     930                 935                 940
     5487 Pro Val Leu Gly Ser Gly Ile Ala Leu Ala Gly Ser Pro Gly Arg Val
     5488 945                 950                 955                 960
     5490 Phe Thr Gly Ser Val Pro Thr Gly Ala Asp Arg Ala Val Phe Val Ala
     5491                 965                 970                 975
     5493 Glu Leu Ala Leu Ala Ala Ala Asp Ala Val Asp Cys Ala Thr Val Glu
     5494             980                 985                 990
     5496 Arg Leu Asp Ile Ala Ser Val Pro Gly Arg Pro Gly His Gly Arg Thr
     5497         995                1000                1005
     5499 Thr Val Gln Thr Trp Val Asp Glu Pro Ala Asp Asp Gly Arg Arg Arg
     5500    1010                1015                1020
     5502 Phe Thr Val His Thr Arg Thr Gly Asp Ala Pro Trp Thr Leu His Ala
E--> 5503 025                1030                1035                1040
     5505 Glu Gly Val Leu Arg Pro His Gly Thr Ala Leu Pro Asp Ala Ala Asp
     5506                1045                1050                1055
     5508 Ala Glu Trp Pro Pro Pro Gly Ala Val Pro Ala Asp Gly Leu Pro Gly
     5509            1060                1065                1070
     5511 Val Trp Arg Arg Gly Asp Gln Val Phe Ala Glu Ala Glu Val Asp Gly
     5512        1075                1080                1085
     5514 Pro Asp Gly Phe Val Val His Pro Asp Leu Leu Asp Ala Val Phe Ser
     5515    1090                1095                1100
     5517 Ala Val Gly Asp Gly Ser Arg Gln Pro Ala Gly Trp Arg Asp Leu Thr
E--> 5518 105                1110                1115                1120
     5520 Val His Ala Ser Asp Ala Thr Val Leu Arg Ala Cys Leu Thr Arg Arg
     5521                1125                1130                1135
     5523 Thr Asp Gly Ala Met Gly Phe Ala Ala Phe Asp Gly Ala Gly Leu Pro
     5524            1140                1145                1150
     5526 Val Leu Thr Ala Glu Ala Val Thr Leu Arg Glu Val Ala Ser Pro Ser
     5527        1155                1160                1165
     5529 Gly Ser Glu Glu Ser Asp Gly Leu His Arg Leu Glu Trp Leu Ala Val
     5530    1170                1175                1180
     5532 Ala Glu Ala Val Tyr Asp Gly Asp Leu Pro Glu Gly His Val Leu Ile
E--> 5533 185                1190                1195                1200
     5535 Thr Ala Ala His Pro Asp Asp Pro Glu Asp Ile Pro Thr Arg Ala His
     5536                1205                1210                1215
     5538 Thr Arg Ala Thr Arg Val Leu Thr Ala Leu Gln His His Leu Thr Thr
     5539            1220                1225                1230
     5541 Thr Asp His Thr Leu Ile Val His Thr Thr Thr Asp Pro Ala Gly Ala
     5542        1235                1240                1245
     5544 Thr Val Thr Gly Leu Thr Arg Thr Ala Gln Asn Glu His Pro His Arg
     5545    1250                1255                1260
     5547 Ile Arg Leu Ile Glu Thr Asp His Pro His Thr Pro Leu Pro Leu Ala
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: US/09/940,316A TIME: 08:05:04

Input Set : D:\30062-20026.txt
Output Set: N:\CRF4\01292003\I940316A.raw

```
E--> 5548 265                1270                1275                1280
     5550 Gln Leu Ala Thr Leu Asp His Pro His Leu Arg Leu Thr His His Thr
     5551                1285                1290                1295
     5553 Leu His His Pro His Leu Thr Pro Leu His Thr Thr Thr Pro Pro Thr
     5554            1300                1305                1310
     5556 Thr Thr Pro Leu Asn Pro Glu His Ala Ile Ile Ile Thr Gly Gly Ser
     5557        1315                1320                1325
     5559 Gly Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr
     5560    1330                1335                1340
     5562 Tyr Leu Leu Ser Arg Thr Pro Pro Pro Asp Ala Thr Pro Gly Thr His
E--> 5563 345                1350                1355                1360
     5565 Leu Pro Cys Asp Val Gly Asp Pro His Gln Leu Ala Thr Thr Leu Thr
     5566                1365                1370                1375
     5568 His Ile Pro Gln Pro Leu Thr Ala Ile Phe His Thr Ala Ala Thr Leu
     5569            1380                1385                1390
     5571 Asp Asp Gly Ile Leu His Ala Leu Thr Pro Asp Arg Leu Thr Thr Val
     5572        1395                1400                1405
     5574 Leu His Pro Lys Ala Asn Ala Ala Trp His Leu His His Leu Thr Gln
     5575    1410                1415                1420
     5577 Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Val
E--> 5578 425                1430                1435                1440
     5580 Leu Gly Ser Pro Gly Gln Gly Asn Tyr Ala Ala Ala Asn Ala Phe Leu
     5581                1445                1450                1455
     5583 Asp Ala Leu Ala Thr His Arg His Thr Leu Gly Gln Pro Ala Thr Ser
     5584            1460                1465                1470
     5586 Ile Ala Trp Gly Met Trp His Thr Thr Ser Thr Leu Thr Gly Gln Leu
     5587        1475                1480                1485
     5589 Asp Asp Ala Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile
     5590    1490                1495                1500
     5592 Thr Asp Asp Glu Gly
E--> 5593 505
     6007 <210> SEQ ID NO: 25
     6008 <211> LENGTH: 1574
     6009 <212> TYPE: PRT
     6010 <213> ORGANISM: Artificial Sequence
     6012 <220> FEATURE:
     6013 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
     6014       synthase fragment
     6016 <400> SEQUENCE: 25
     6017 Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val Val
     6018   1               5                  10                  15
     6020 Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly Leu
     6021              20                  25                  30
     6023 Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu Ala
     6024          35                  40                  45
     6026 Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro Ser
     6027      50                  55                  60
     6029 Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly Ala
     6030  65                  70                  75                  80
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: US/09/940,316A TIME: 08:05:04

Input Set : D:\30062-20026.txt
Output Set: N:\CRF4\01292003\I940316A.raw

```
     6179 Leu Ala Thr Thr Arg Glu Leu Arg Tyr Asp Arg Pro His Thr Ala Ile
     6180 865                 870                 875                 880
     6182 Pro Asn Asp Pro Thr Thr Ala Glu Tyr Trp Ala Glu Gln Val Arg Asn
     6183                 885                 890                 895
     6185 Pro Val Leu Phe His Ala His Thr Gln Arg Tyr Pro Asp Ala Val Phe
     6186             900                 905                 910
     6188 Val Glu Ile Gly Pro Gly Gln Asp Leu Ser Pro Leu Val Asp Gly Ile
     6189         915                 920                 925
     6191 Ala Leu Gln Asn Gly Thr Ala Asp Glu Val His Ala Leu His Thr Ala
     6192     930                 935                 940
     6194 Leu Ala Arg Leu Phe Thr Arg Gly Ala Thr Leu Asp Trp Ser Arg Ile
     6195 945                 950                 955                 960
     6197 Leu Gly Gly Ala Ser Arg His Asp Pro Asp Val Pro Ser Tyr Ala Phe
     6198                 965                 970                 975
     6200 Gln Arg Arg Pro Tyr Trp Ile Glu Ser Ala Pro Pro Ala Thr Ala Asp
     6201             980                 985                 990
     6203 Ser Gly His Pro Val Leu Gly Thr Gly Val Ala Val Ala Gly Ser Pro
     6204         995                1000                1005
     6206 Gly Arg Val Phe Thr Gly Pro Val Pro Ala Gly Ala Asp Arg Ala Val
     6207    1010                1015                1020
     6209 Phe Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala Thr Asp Cys Ala
E--> 6210 025                1030                1035                104
     6212 Thr Val Glu Gln Leu Asp Val Thr Ser Val Pro Gly Gly Ser Ala Arg
     6213                1045                1050                1055
     6215 Gly Arg Ala Thr Ala Gln Thr Trp Val Asp Glu Pro Ala Ala Asp Gly
     6216            1060                1065                1070
     6218 Arg Arg Arg Phe Thr Val His Thr Arg Val Gly Asp Ala Pro Trp Thr
     6219        1075                1080                1085
     6221 Leu His Ala Glu Gly Val Leu Arg Pro Gly Arg Val Pro Gln Pro Glu
     6222    1090                1095                1100
     6224 Ala Val Asp Thr Ala Trp Pro Pro Pro Gly Ala Val Pro Ala Asp Gly
E--> 6225 105                1110                1115                112
     6227 Leu Pro Gly Ala Trp Arg Arg Ala Asp Gln Val Phe Val Glu Ala Glu
     6228                1125                1130                1135
     6230 Val Asp Ser Pro Asp Gly Phe Val Ala His Pro Asp Leu Leu Asp Ala
     6231            1140                1145                1150
     6233 Val Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro Thr Gly Trp Arg
     6234        1155                1160                1165
     6236 Asp Leu Ala Val His Ala Ser Asp Ala Thr Val Leu Arg Ala Cys Leu
     6237    1170                1175                1180
     6239 Thr Arg Arg Asp Ser Gly Val Val Glu Leu Ala Ala Phe Asp Gly Ala
E--> 6240 185                1190                1195                120
     6242 Gly Met Pro Val Leu Thr Ala Glu Ser Val Thr Leu Gly Glu Val Ala
     6243                1205                1210                1215
     6245 Ser Ala Gly Gly Ser Asp Glu Ser Asp Gly Leu Leu Arg Leu Glu Trp
     6246            1220                1225                1230
     6248 Leu Pro Val Ala Glu Ala His Tyr Asp Gly Ala Asp Glu Leu Pro Glu
     6249        1235                1240                1245
     6251 Gly Tyr Thr Leu Ile Thr Ala Thr His Pro Asp Asp Pro Asp Asp Pro
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     6252    1250                1255                1260
     6254 Thr Asn Pro His Asn Thr Pro Thr Arg Thr His Thr Gln Thr Thr Arg
E--> 6255 265                1270                1275                128
     6257 Val Leu Thr Ala Leu Gln His His Leu Ile Thr Thr Asn His Thr Leu
     6258                1285                1290                1295
     6260 Ile Val His Thr Thr Thr Asp Pro Pro Gly Ala Ala Val Thr Gly Leu
     6261            1300                1305                1310
     6263 Thr Arg Thr Ala Gln Asn Glu His Pro Gly Arg Ile His Leu Ile Glu
     6264        1315                1320                1325
     6266 Thr His His Pro His Thr Pro Leu Pro Leu Thr Gln Leu Thr Thr Leu
     6267    1330                1335                1340
     6269 His Gln Pro His Leu Arg Leu Thr Asn Asn Thr Leu His Thr Pro His
E--> 6270 345                1350                1355                136
     6272 Leu Thr Pro Ile Thr Thr His His Asn Thr Thr Thr Thr Pro Asn
     6273                1365                1370                1375
     6275 Thr Pro Pro Leu Asn Pro Asn His Ala Ile Leu Ile Thr Gly Gly Ser
     6276            1380                1385                1390
     6278 Gly Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr
     6279        1395                1400                1405
     6281 Tyr Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr Pro Gly Thr His
     6282    1410                1415                1420
     6284 Ile Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr Gln Ala Leu Thr
E--> 6285 425                1430                1435                144
     6287 His Ile Pro Gln Pro Leu Thr Gly Ile Phe His Thr Ala Ala Thr Leu
     6288                1445                1450                1455
     6290 Asp Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln His Leu Thr Thr Thr
     6291            1460                1465                1470
     6293 Leu Gln Pro Lys Ala Asp Ala Ala Trp His Leu His His His Thr Gln
     6294        1475                1480                1485
     6296 Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Thr
     6297    1490                1495                1500
     6299 Leu Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe Leu
E--> 6300 505                1510                1515                152
     6302 Asp Ala Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr Thr
     6303                1525                1530                1535
     6305 Ile Ala Trp Gly Met Trp His Thr Thr Thr Thr Leu Thr Ser Gln Leu
     6306            1540                1545                1550
     6308 Thr Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile
     6309        1555                1560                1565
     6311 Ser Asp Asp Glu Gly Met
     6312    1570
     6722 <210> SEQ ID NO: 27
     6723 <211> LENGTH: 1557
     6724 <212> TYPE: PRT
     6725 <213> ORGANISM: Artificial Sequence
     6727 <220> FEATURE:
     6728 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
     6729       synthase fragment
     6731 <400> SEQUENCE: 27
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     6879 Glu Ala Arg Ala Val Leu Gly Glu Gly Val Glu Ile Ala Ala Val Asn
     6880 785                 790                 795                 800
     6882 Gly Pro Ser Ser Val Val Leu Ser Gly Asp Glu Ala Ala Val Leu Gln
     6883                 805                 810                 815
     6885 Ala Ala Glu Gly Leu Gly Lys Trp Thr Arg Leu Ala Thr Ser His Ala
     6886             820                 825                 830
     6888 Phe His Ser Ala Arg Met Glu Pro Met Leu Glu Glu Phe Arg Ala Val
     6889         835                 840                 845
     6891 Ala Glu Gly Leu Thr Tyr Arg Thr Pro Gln Val Ser Met Ala Val Gly
     6892     850                 855                 860
     6894 Asp Gln Val Thr Thr Ala Glu Tyr Trp Val Arg Gln Val Arg Asp Thr
     6895 865                 870                 875                 880
     6897 Val Arg Phe Gly Glu Gln Val Ala Ser Tyr Glu Asp Ala Val Phe Val
     6898                 885                 890                 895
     6900 Glu Leu Gly Ala Asp Arg Ser Leu Ala Arg Leu Val Asp Gly Val Ala
     6901             900                 905                 910
     6903 Met Leu His Gly Asp His Glu Ile Gln Ala Ala Ile Gly Ala Leu Ala
     6904         915                 920                 925
     6906 His Leu Tyr Val Asn Gly Val Thr Val Asp Trp Pro Ala Leu Leu Gly
     6907     930                 935                 940
     6909 Asp Ala Pro Ala Thr Arg Val Leu Asp Leu Pro Thr Tyr Ala Phe Gln
     6910 945                 950                 955                 960
     6912 His Gln Arg Tyr Trp Leu Glu Ser Ala Pro Pro Ala Thr Ala Asp Ser
     6913                 965                 970                 975
     6915 Gly His Pro Val Leu Gly Thr Gly Val Ala Val Ala Gly Ser Pro Gly
     6916             980                 985                 990
     6918 Arg Val Phe Thr Gly Pro Val Pro Ala Gly Ala Asp Arg Ala Val Phe
     6919         995                1000                1005
     6921 Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala Thr Asp Cys Ala Thr
     6922    1010                1015                1020
     6924 Val Glu Gln Leu Asp Val Thr Ser Val Pro Gly Gly Ser Ala Arg Gly
E--> 6925 025                 1030                1035                104
     6927 Arg Ala Thr Ala Gln Thr Trp Val Asp Glu Pro Ala Ala Asp Gly Arg
     6928                1045                1050                1055
     6930 Arg Arg Phe Thr Val His Thr Arg Val Gly Asp Ala Pro Trp Thr Leu
     6931            1060                1065                1070
     6933 His Ala Glu Gly Val Leu Arg Pro Gly Arg Val Pro Gln Pro Glu Ala
     6934        1075                1080                1085
     6936 Val Asp Thr Ala Trp Pro Pro Pro Gly Ala Val Pro Ala Asp Gly Leu
     6937    1090                1095                1100
     6939 Pro Gly Ala Trp Arg Arg Ala Asp Gln Val Phe Val Glu Ala Glu Val
E--> 6940 105                 1110                1115                112
     6942 Asp Ser Pro Asp Gly Phe Val Ala His Pro Asp Leu Leu Asp Ala Val
     6943                1125                1130                1135
     6945 Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro Thr Gly Trp Arg Asp
     6946            1140                1145                1150
     6948 Leu Ala Val His Ala Ser Asp Ala Thr Val Leu Arg Ala Cys Leu Thr
     6949        1155                1160                1165
     6951 Arg Arg Asp Ser Gly Val Val Glu Leu Ala Ala Phe Asp Gly Ala Gly
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: US/09/940,316A TIME: 08:05:04

Input Set : D:\30062-20026.txt
Output Set: N:\CRF4\01292003\I940316A.raw

```
     6952    1170                1175                1180
     6954 Met Pro Val Leu Thr Ala Glu Ser Val Thr Leu Gly Glu Val Ala Ser
E--> 6955 185                 1190                1195                120
     6957 Ala Gly Gly Ser Asp Glu Ser Asp Gly Leu Leu Arg Leu Glu Trp Leu
     6958                 1205                1210                1215
     6960 Pro Val Ala Glu Ala His Tyr Asp Gly Ala Asp Glu Leu Pro Glu Gly
     6961            1220                1225                1230
     6963 Tyr Thr Leu Ile Thr Ala Thr His Pro Asp Asp Pro Asp Asp Pro Thr
     6964        1235                1240                1245
     6966 Asn Pro His Asn Thr Pro Thr Arg Thr His Thr Gln Thr Thr Arg Val
     6967    1250                1255                1260
     6969 Leu Thr Ala Leu Gln His His Leu Ile Thr Thr Asn His Thr Leu Ile
E--> 6970 265                 1270                1275                128
     6972 Val His Thr Thr Thr Asp Pro Pro Gly Ala Ala Val Thr Gly Leu Thr
     6973                 1285                1290                1295
     6975 Arg Thr Ala Gln Asn Glu His Pro Gly Arg Ile His Leu Ile Glu Thr
     6976            1300                1305                1310
     6978 His His Pro His Thr Pro Leu Pro Leu Thr Gln Leu Thr Thr Leu His
     6979        1315                1320                1325
     6981 Gln Pro His Leu Arg Leu Thr Asn Asn Thr Leu His Thr Pro His Leu
     6982    1330                1335                1340
     6984 Thr Pro Ile Thr Thr His His Asn Thr Thr Thr Thr Thr Pro Asn Thr
E--> 6985 345                 1350                1355                136
     6987 Pro Pro Leu Asn Pro Asn His Ala Ile Leu Ile Thr Gly Gly Ser Gly
     6988                 1365                1370                1375
     6990 Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr Tyr
     6991            1380                1385                1390
     6993 Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr Pro Gly Thr His Ile
     6994        1395                1400                1405
     6996 Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr Gln Ala Leu Thr His
     6997    1410                1415                1420
     6999 Ile Pro Gln Pro Leu Thr Gly Ile Phe His Thr Ala Ala Thr Leu Asp
E--> 7000 425                 1430                1435                144
     7002 Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln His Leu Thr Thr Thr Leu
     7003                 1445                1450                1455
     7005 Gln Pro Lys Ala Asp Ala Ala Trp His Leu His His His Thr Gln Asn
     7006            1460                1465                1470
     7008 Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Thr Leu
     7009        1475                1480                1485
     7011 Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp
     7012    1490                1495                1500
     7014 Ala Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr Thr Ile
E--> 7015 505                 1510                1515                152
     7017 Ala Trp Gly Met Trp His Thr Thr Thr Thr Leu Thr Ser Gln Leu Thr
     7018                 1525                1530                1535
     7020 Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile Ser
     7021            1540                1545                1550
     7023 Asp Asp Glu Gly Met
     7024        1555
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

7442 <210> SEQ ID NO: 29
7443 <211> LENGTH: 1588
7444 <212> TYPE: PRT
7445 <213> ORGANISM: Artificial Sequence
7447 <220> FEATURE:
7448 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
7449 synthase fragment
7451 <400> SEQUENCE: 29
7452 Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val Val
7453 1 5 10 15
7455 Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly Leu
7456 20 25 30
7458 Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu Ala
7459 35 40 45
7461 Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro Ser
7462 50 55 60
7464 Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly Ala
7465 65 70 75 80
7467 Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp Ser
7468 85 90 95
7470 Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly Val
7471 100 105 110
7473 Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala Leu
7474 115 120 125
7476 Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val Ala
7477 130 135 140
7479 Ala Arg Thr Ala Ala Thr Ala Ala Ala His Asp Glu Pro Leu Ala Ile
7480 145 150 155 160
7482 Val Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Gln Glu
7483 165 170 175
7485 Leu Trp Arg Leu Val Ala Ser Gly Thr Asp Ala Ile Thr Glu Phe Pro
7486 180 185 190
7488 Ala Asp Arg Gly Trp Asp Val Asp Ala Leu Tyr Asp Pro Asp Pro Asp
7489 195 200 205
7491 Ala Ile Gly Lys Thr Phe Val Arg His Gly Gly Phe Leu Asp Gly Ala
7492 210 215 220
7494 Thr Gly Phe Asp Ala Ala Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu
7495 225 230 235 240
7497 Ala Met Asp Pro Gln Gln Arg Val Leu Leu Glu Thr Ser Trp Glu Ala
7498 245 250 255
7500 Phe Glu Ser Ala Gly Ile Thr Pro Asp Ala Ala Arg Gly Ser Asp Thr
7501 260 265 270
7503 Gly Val Phe Ile Gly Ala Phe Ser Tyr Gly Tyr Gly Thr Gly Ala Asp
7504 275 280 285
7506 Thr Asn Gly Phe Gly Ala Thr Gly Ser Gln Thr Ser Val Leu Ser Gly
7507 290 295 300
7509 Arg Leu Ser Tyr Phe Tyr Gly Leu Glu Gly Pro Ser Val Thr Val Asp
7510 305 310 315 320
7512 Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Gln Ala Gly Gln Ser

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
7587 Val Asp Val Val Gln Pro Ala Ser Trp Ala Met Met Val Ser Leu Ala
7588                 725                 730                 735
7590 Ala Val Trp Gln Ala Ala Gly Val Arg Pro Asp Ala Val Ile Gly His
7591             740                 745                 750
7593 Ser Gln Gly Glu Ile Ala Ala Ala Cys Val Ala Gly Ala Val Ser Leu
7594         755                 760                 765
7596 Arg Asp Ala Ala Arg Ile Val Thr Leu Arg Ser Gln Ala Ile Ala Arg
7597     770                 775                 780
7599 Gly Leu Ala Gly Arg Gly Ala Met Ala Ser Val Ala Leu Pro Ala Gln
7600 785                 790                 795                 800
7602 Asp Val Glu Leu Val Asp Gly Ala Trp Ile Ala Ala His Asn Gly Pro
7603                 805                 810                 815
7605 Ala Ser Thr Val Ile Ala Gly Thr Pro Glu Ala Val Asp His Val Leu
7606             820                 825                 830
7608 Thr Ala His Glu Ala Gln Gly Val Arg Val Arg Arg Ile Thr Val Asp
7609         835                 840                 845
7611 Tyr Ala Ser His Thr Pro His Val Glu Leu Ile Arg Asp Glu Leu Leu
7612     850                 855                 860
7614 Asp Ile Thr Ser Asp Ser Ser Ser Gln Thr Pro Leu Val Pro Trp Leu
7615 865                 870                 875                 880
7617 Ser Thr Val Asp Gly Thr Trp Val Asp Ser Pro Leu Asp Gly Glu Tyr
7618                 885                 890                 895
7620 Trp Tyr Arg Asn Leu Arg Glu Pro Val Gly Phe His Pro Ala Val Ser
7621             900                 905                 910
7623 Gln Leu Gln Ala Gln Gly Asp Thr Val Phe Val Glu Val Ser Ala Ser
7624         915                 920                 925
7626 Pro Val Leu Leu Gln Ala Met Asp Asp Asp Val Val Thr Val Ala Thr
7627     930                 935                 940
7629 Leu Arg Arg Asp Asp Gly Asp Ala Thr Arg Met Leu Thr Ala Leu Ala
7630 945                 950                 955                 960
7632 Gln Ala Tyr Val His Gly Val Thr Val Asp Trp Pro Ala Ile Leu Gly
7633                 965                 970                 975
7635 Thr Thr Thr Thr Arg Val Leu Asp Leu Pro Thr Tyr Ala Phe Gln His
7636             980                 985                 990
7638 Gln Arg Tyr Trp Leu Glu Ser Ala Pro Pro Ala Thr Ala Asp Ser Gly
7639         995                1000                1005
7641 His Pro Val Leu Gly Thr Gly Val Ala Val Ala Gly Ser Pro Gly Arg
7642    1010                1015                1020
7644 Val Phe Thr Gly Pro Val Pro Ala Gly Ala Asp Arg Ala Val Phe Ile
E--> 7645 025                1030                1035                104
7647 Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala Thr Asp Cys Ala Thr Val
7648                1045                1050                1055
7650 Glu Gln Leu Asp Val Thr Ser Val Pro Gly Gly Ser Ala Arg Gly Arg
7651            1060                1065                1070
7653 Ala Thr Ala Gln Thr Trp Val Asp Glu Pro Ala Ala Asp Gly Arg Arg
7654        1075                1080                1085
7656 Arg Phe Thr Val His Thr Arg Val Gly Asp Ala Pro Trp Thr Leu His
7657    1090                1095                1100
7659 Ala Glu Gly Val Leu Arg Pro Gly Arg Val Pro Gln Pro Glu Ala Val
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: US/09/940,316A TIME: 08:05:04

Input Set : D:\30062-20026.txt
Output Set: N:\CRF4\01292003\I940316A.raw

```
E--> 7660 105                 1110                1115                112
     7662 Asp Thr Ala Trp Pro Pro Pro Gly Ala Val Pro Ala Asp Gly Leu Pro
     7663               1125                1130                1135
     7665 Gly Ala Trp Arg Arg Ala Asp Gln Val Phe Val Glu Ala Glu Val Asp
     7666           1140                1145                1150
     7668 Ser Pro Asp Gly Phe Val Ala His Pro Asp Leu Leu Asp Ala Val Phe
     7669       1155                1160                1165
     7671 Ser Ala Val Gly Asp Gly Ser Arg Gln Pro Thr Gly Trp Arg Asp Leu
     7672   1170                1175                1180
     7674 Ala Val His Ala Ser Asp Ala Thr Val Leu Arg Ala Cys Leu Thr Arg
E--> 7675 185                 1190                1195                120
     7677 Arg Asp Ser Gly Val Val Glu Leu Ala Ala Phe Asp Gly Ala Gly Met
     7678               1205                1210                1215
     7680 Pro Val Leu Thr Ala Glu Ser Val Thr Leu Gly Glu Val Ala Ser Ala
     7681           1220                1225                1230
     7683 Gly Gly Ser Asp Glu Ser Asp Gly Leu Leu Arg Leu Glu Trp Leu Pro
     7684       1235                1240                1245
     7686 Val Ala Glu Ala His Tyr Asp Gly Ala Asp Glu Leu Pro Glu Gly Tyr
     7687   1250                1255                1260
     7689 Thr Leu Ile Thr Ala Thr His Pro Asp Asp Pro Asp Asp Pro Thr Asn
E--> 7690 265                 1270                1275                128
     7692 Pro His Asn Thr Pro Thr Arg Thr His Thr Gln Thr Thr Arg Val Leu
     7693               1285                1290                1295
     7695 Thr Ala Leu Gln His His Leu Ile Thr Thr Asn His Thr Leu Ile Val
     7696           1300                1305                1310
     7698 His Thr Thr Thr Asp Pro Pro Gly Ala Ala Val Thr Gly Leu Thr Arg
     7699       1315                1320                1325
     7701 Thr Ala Gln Asn Glu His Pro Gly Arg Ile His Leu Ile Glu Thr His
     7702   1330                1335                1340
     7704 His Pro His Thr Pro Leu Pro Leu Thr Gln Leu Thr Thr Leu His Gln
E--> 7705 345                 1350                1355                136
     7707 Pro His Leu Arg Leu Thr Asn Asn Thr Leu His Thr Pro His Leu Thr
     7708               1365                1370                1375
     7710 Pro Ile Thr Thr His His Asn Thr Thr Thr Thr Thr Pro Asn Thr Pro
     7711           1380                1385                1390
     7713 Pro Leu Asn Pro Asn His Ala Ile Leu Ile Thr Gly Gly Ser Gly Thr
     7714       1395                1400                1405
     7716 Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr Tyr Leu
     7717   1410                1415                1420
     7719 Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr Pro Gly Thr His Ile Pro
E--> 7720 425                 1430                1435                144
     7722 Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr Gln Ala Leu Thr His Ile
     7723               1445                1450                1455
     7725 Pro Gln Pro Leu Thr Gly Ile Phe His Thr Ala Ala Thr Leu Asp Asp
     7726           1460                1465                1470
     7728 Ala Thr Leu Thr Asn Leu Thr Pro Gln His Leu Thr Thr Thr Leu Gln
     7729       1475                1480                1485
     7731 Pro Lys Ala Asp Ala Ala Trp His Leu His His His Thr Gln Asn Gln
     7732   1490                1495                1500
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     7734 Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Thr Leu Gly
E--> 7735 505                1510                1515                152
     7737 Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp Ala
     7738                1525                1530                1535
     7740 Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr Thr Ile Ala
     7741            1540                1545                1550
     7743 Trp Gly Met Trp His Thr Thr Thr Thr Leu Thr Ser Gln Leu Thr Asp
     7744        1555                1560                1565
     7746 Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile Ser Asp
     7747    1570                1575                1580
     7749 Asp Glu Gly Met
E--> 7750 585
     8164 <210> SEQ ID NO: 31
     8165 <211> LENGTH: 1578
     8166 <212> TYPE: PRT
     8167 <213> ORGANISM: Artificial Sequence
     8169 <220> FEATURE:
     8170 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
     8171       synthase fragment
     8173 <400> SEQUENCE: 31
     8174 Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val Val
     8175   1               5                  10                  15
     8177 Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly Leu
     8178              20                  25                  30
     8180 Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu Ala
     8181          35                  40                  45
     8183 Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro Ser
     8184      50                  55                  60
     8186 Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly Ala
     8187  65                  70                  75                  80
     8189 Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp Ser
     8190                  85                  90                  95
     8192 Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly Val
     8193             100                 105                 110
     8195 Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala Leu
     8196         115                 120                 125
     8198 Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val Ala
     8199     130                 135                 140
     8201 Ala Arg Thr Ala Ala Thr Ala Ala Ala His Asp Glu Pro Leu Ala Ile
     8202 145                 150                 155                 160
     8204 Val Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Gln Glu
     8205                 165                 170                 175
     8207 Leu Trp Arg Leu Val Ala Ser Gly Thr Asp Ala Ile Thr Glu Phe Pro
     8208             180                 185                 190
     8210 Ala Asp Arg Gly Trp Asp Val Asp Ala Leu Tyr Asp Pro Asp Pro Asp
     8211         195                 200                 205
     8213 Ala Ile Gly Lys Thr Phe Val Arg His Gly Gly Phe Leu Asp Gly Ala
     8214     210                 215                 220
     8216 Thr Gly Phe Asp Ala Ala Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     8364    1010                1015                1020
     8366 Asp Arg Ala Val Phe Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala
E--> 8367 025                1030                1035                104
     8369 Thr Asp Cys Ala Thr Val Glu Gln Leu Asp Val Thr Ser Val Pro Gly
     8370                1045                1050                1055
     8372 Gly Ser Ala Arg Gly Arg Ala Thr Ala Gln Thr Trp Val Asp Glu Pro
     8373            1060                1065                1070
     8375 Ala Ala Asp Gly Arg Arg Arg Phe Thr Val His Thr Arg Val Gly Asp
     8376        1075                1080                1085
     8378 Ala Pro Trp Thr Leu His Ala Glu Gly Val Leu Arg Pro Gly Arg Val
     8379    1090                1095                1100
     8381 Pro Gln Pro Glu Ala Val Asp Thr Ala Trp Pro Pro Pro Gly Ala Val
E--> 8382 105                1110                1115                112
     8384 Pro Ala Asp Gly Leu Pro Gly Ala Trp Arg Arg Ala Asp Gln Val Phe
     8385                1125                1130                1135
     8387 Val Glu Ala Glu Val Asp Ser Pro Asp Gly Phe Val Ala His Pro Asp
     8388            1140                1145                1150
     8390 Leu Leu Asp Ala Val Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro
     8391        1155                1160                1165
     8393 Thr Gly Trp Arg Asp Leu Ala Val His Ala Ser Asp Ala Thr Val Leu
     8394    1170                1175                1180
     8396 Arg Ala Cys Leu Thr Arg Arg Asp Ser Gly Val Val Glu Leu Ala Ala
E--> 8397 185                1190                1195                120
     8399 Phe Asp Gly Ala Gly Met Pro Val Leu Thr Ala Glu Ser Val Thr Leu
     8400                1205                1210                1215
     8402 Gly Glu Val Ala Ser Ala Gly Gly Ser Asp Glu Ser Asp Gly Leu Leu
     8403            1220                1225                1230
     8405 Arg Leu Glu Trp Leu Pro Val Ala Glu Ala His Tyr Asp Gly Ala Asp
     8406        1235                1240                1245
     8408 Glu Leu Pro Glu Gly Tyr Thr Leu Ile Thr Ala Thr His Pro Asp Asp
     8409    1250                1255                1260
     8411 Pro Asp Asp Pro Thr Asn Pro His Asn Thr Pro Thr Arg Thr His Thr
E--> 8412 265                1270                1275                128
     8414 Gln Thr Thr Arg Val Leu Thr Ala Leu Gln His His Leu Ile Thr Thr
     8415                1285                1290                1295
     8417 Asn His Thr Leu Ile Val His Thr Thr Thr Asp Pro Pro Gly Ala Ala
     8418            1300                1305                1310
     8420 Val Thr Gly Leu Thr Arg Thr Ala Gln Asn Glu His Pro Gly Arg Ile
     8421        1315                1320                1325
     8423 His Leu Ile Glu Thr His His Pro His Thr Pro Leu Pro Leu Thr Gln
     8424    1330                1335                1340
     8426 Leu Thr Thr Leu His Gln Pro His Leu Arg Leu Thr Asn Asn Thr Leu
E--> 8427 345                1350                1355                136
     8429 His Thr Pro His Leu Thr Pro Ile Thr Thr His His Asn Thr Thr Thr
     8430                1365                1370                1375
     8432 Thr Thr Pro Asn Thr Pro Pro Leu Asn Pro Asn His Ala Ile Leu Ile
     8433            1380                1385                1390
     8435 Thr Gly Gly Ser Gly Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn
     8436        1395                1400                1405
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: US/09/940,316A TIME: 08:05:04

Input Set : D:\30062-20026.txt
Output Set: N:\CRF4\01292003\I940316A.raw

```
     8438 His Pro His Thr Tyr Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr
     8439    1410                1415                1420
     8441 Pro Gly Thr His Ile Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr
E--> 8442 425                 1430                1435                144
     8444 Gln Ala Leu Thr His Ile Pro Gln Pro Leu Thr Gly Ile Phe His Thr
     8445                1445                1450                1455
     8447 Ala Ala Thr Leu Asp Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln His
     8448            1460                1465                1470
     8450 Leu Thr Thr Thr Leu Gln Pro Lys Ala Asp Ala Ala Trp His Leu His
     8451        1475                1480                1485
     8453 His His Thr Gln Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser
     8454    1490                1495                1500
     8456 Ala Ala Ala Thr Leu Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala
E--> 8457 505                 1510                1515                152
     8459 Asn Ala Phe Leu Asp Ala Leu Ala Thr His Arg His Thr Gln Gly Gln
     8460                1525                1530                1535
     8462 Pro Ala Thr Thr Ile Ala Trp Gly Met Trp His Thr Thr Thr Thr Leu
     8463            1540                1545                1550
     8465 Thr Ser Gln Leu Thr Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly
     8466        1555                1560                1565
     8468 Phe Leu Pro Ile Ser Asp Asp Glu Gly Met
     8469    1570                1575
     8891 <210> SEQ ID NO: 33
     8892 <211> LENGTH: 1605
     8893 <212> TYPE: PRT
     8894 <213> ORGANISM: Artificial Sequence
     8896 <220> FEATURE:
     8897 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic PKS
     8898       synthase fragment
     8900 <400> SEQUENCE: 33
     8901 Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val Val
     8902   1               5                  10                  15
     8904 Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly Leu
     8905              20                  25                  30
     8907 Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu Ala
     8908          35                  40                  45
     8910 Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro Ser
     8911      50                  55                  60
     8913 Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly Ala
     8914  65                  70                  75                  80
     8916 Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp Ser
     8917                  85                  90                  95
     8919 Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly Val
     8920              100                 105                 110
     8922 Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala Leu
     8923          115                 120                 125
     8925 Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val Ala
     8926      130                 135                 140
     8928 Ala Arg Thr Ala Ala Thr Ala Ala Ala His Asp Glu Pro Leu Ala Ile
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     9076     930                 935                 940
     9078 Ser Pro Val Leu Leu Gln Ala Met Asp Asp Asp Val Val Thr Val Ala
     9079 945                 950                 955                 960
     9081 Thr Leu Arg Arg Asp Asp Gly Asp Ala Thr Arg Met Leu Thr Ala Leu
     9082                 965                 970                 975
     9084 Ala Gln Ala Tyr Val His Gly Val Thr Val Asp Trp Pro Ala Ile Leu
     9085             980                 985                 990
     9087 Gly Thr Thr Thr Thr Arg Val Leu Asp Leu Pro Thr Tyr Ala Phe Gln
     9088         995                1000                1005
     9090 His Gln Arg Tyr Trp Leu Glu Ser Ala Pro Pro Ala Thr Ala Asp Ser
     9091    1010                1015                1020
     9093 Gly His Pro Val Leu Gly Thr Gly Val Ala Val Ala Gly Ser Pro Gly
E--> 9094 025                1030                1035                104
     9096 Arg Val Phe Thr Gly Pro Val Pro Ala Gly Ala Asp Arg Ala Val Phe
     9097                1045                1050                1055
     9099 Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala Thr Asp Cys Ala Thr
     9100            1060                1065                1070
     9102 Val Glu Gln Leu Asp Val Thr Ser Val Pro Gly Gly Ser Ala Arg Gly
     9103        1075                1080                1085
     9105 Arg Ala Thr Ala Gln Thr Trp Val Asp Glu Pro Ala Ala Asp Gly Arg
     9106    1090                1095                1100
     9108 Arg Arg Phe Thr Val His Thr Arg Val Gly Asp Ala Pro Trp Thr Leu
E--> 9109 105                1110                1115                112
     9111 His Ala Glu Gly Val Leu Arg Pro Gly Arg Val Pro Gln Pro Glu Ala
     9112                1125                1130                1135
     9114 Val Asp Thr Ala Trp Pro Pro Pro Gly Ala Val Pro Ala Asp Gly Leu
     9115            1140                1145                1150
     9117 Pro Gly Ala Trp Arg Arg Ala Asp Gln Val Phe Val Glu Ala Glu Val
     9118        1155                1160                1165
     9120 Asp Ser Pro Asp Gly Phe Val Ala His Pro Asp Leu Leu Asp Ala Val
     9121    1170                1175                1180
     9123 Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro Thr Gly Trp Arg Asp
E--> 9124 185                1190                1195                120
     9126 Leu Ala Val His Ala Ser Asp Ala Thr Val Leu Arg Ala Cys Leu Thr
     9127                1205                1210                1215
     9129 Arg Arg Asp Ser Gly Val Val Glu Leu Ala Ala Phe Asp Gly Ala Gly
     9130            1220                1225                1230
     9132 Met Pro Val Leu Thr Ala Glu Ser Val Thr Leu Gly Glu Val Ala Ser
     9133        1235                1240                1245
     9135 Ala Gly Gly Ser Asp Glu Ser Asp Gly Leu Leu Arg Leu Glu Trp Leu
     9136    1250                1255                1260
     9138 Pro Val Ala Glu Ala His Tyr Asp Gly Ala Asp Glu Leu Pro Glu Gly
E--> 9139 265                1270                1275                128
     9141 Tyr Thr Leu Ile Thr Ala Thr His Pro Asp Asp Pro Asp Asp Pro Thr
     9142                1285                1290                1295
     9144 Asn Pro His Asn Thr Pro Thr Arg Thr His Thr Gln Thr Thr Arg Val
     9145            1300                1305                1310
     9147 Leu Thr Ala Leu Gln His His Leu Ile Thr Thr Asn His Thr Leu Ile
     9148        1315                1320                1325
```

RAW SEQUENCE LISTING DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:04

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

```
     9150 Val His Thr Thr Thr Asp Pro Pro Gly Ala Ala Val Thr Gly Leu Thr
     9151    1330                1335                1340
     9153 Arg Thr Ala Gln Asn Glu His Pro Gly Arg Ile His Leu Ile Glu Thr
E--> 9154 345                 1350                1355                136
     9156 His His Pro His Thr Pro Leu Pro Leu Thr Gln Leu Thr Thr Leu His
     9157                1365                1370                1375
     9159 Gln Pro His Leu Arg Leu Thr Asn Asn Thr Leu His Thr Pro His Leu
     9160            1380                1385                1390
     9162 Thr Pro Ile Thr Thr His His Asn Thr Thr Thr Thr Thr Pro Asn Thr
     9163        1395                1400                1405
     9165 Pro Pro Leu Asn Pro Asn His Ala Ile Leu Ile Thr Gly Gly Ser Gly
     9166    1410                1415                1420
     9168 Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr Tyr
E--> 9169 425                 1430                1435                144
     9171 Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr Pro Gly Thr His Ile
     9172                1445                1450                1455
     9174 Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr Gln Ala Leu Thr His
     9175            1460                1465                1470
     9177 Ile Pro Gln Pro Leu Thr Gly Ile Phe His Thr Ala Ala Thr Leu Asp
     9178        1475                1480                1485
     9180 Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln His Leu Thr Thr Thr Leu
     9181    1490                1495                1500
     9183 Gln Pro Lys Ala Asp Ala Ala Trp His Leu His His His Thr Gln Asn
E--> 9184 505                 1510                1515                152
     9186 Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Thr Leu
     9187                1525                1530                1535
     9189 Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp
     9190            1540                1545                1550
     9192 Ala Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr Thr Ile
     9193        1555                1560                1565
     9195 Ala Trp Gly Met Trp His Thr Thr Thr Thr Leu Thr Ser Gln Leu Thr
     9196    1570                1575                1580
     9198 Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile Ser
E--> 9199 585                 1590                1595                160
     9201 Asp Asp Glu Gly Met
     9202                1605
```

VERIFICATION SUMMARY DATE: 01/29/2003
PATENT APPLICATION: **US/09/940,316A** TIME: 08:05:06

Input Set : **D:\30062-20026.txt**
Output Set: **N:\CRF4\01292003\I940316A.raw**

L:2519 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:3448 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:17
M:332 Repeated in SeqNo=17
L:4135 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:19
M:332 Repeated in SeqNo=19
L:4818 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:21
M:332 Repeated in SeqNo=21
L:5503 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:23
M:332 Repeated in SeqNo=23
L:6210 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:25
M:332 Repeated in SeqNo=25
L:6925 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:27
M:332 Repeated in SeqNo=27
L:7645 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:29
M:332 Repeated in SeqNo=29
L:8367 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:31
M:332 Repeated in SeqNo=31
L:9094 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:33
M:332 Repeated in SeqNo=33